Mature *Listeria monocytogenes* biofilms removal with enzymatic and chlorinated alkaline products

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June 2019

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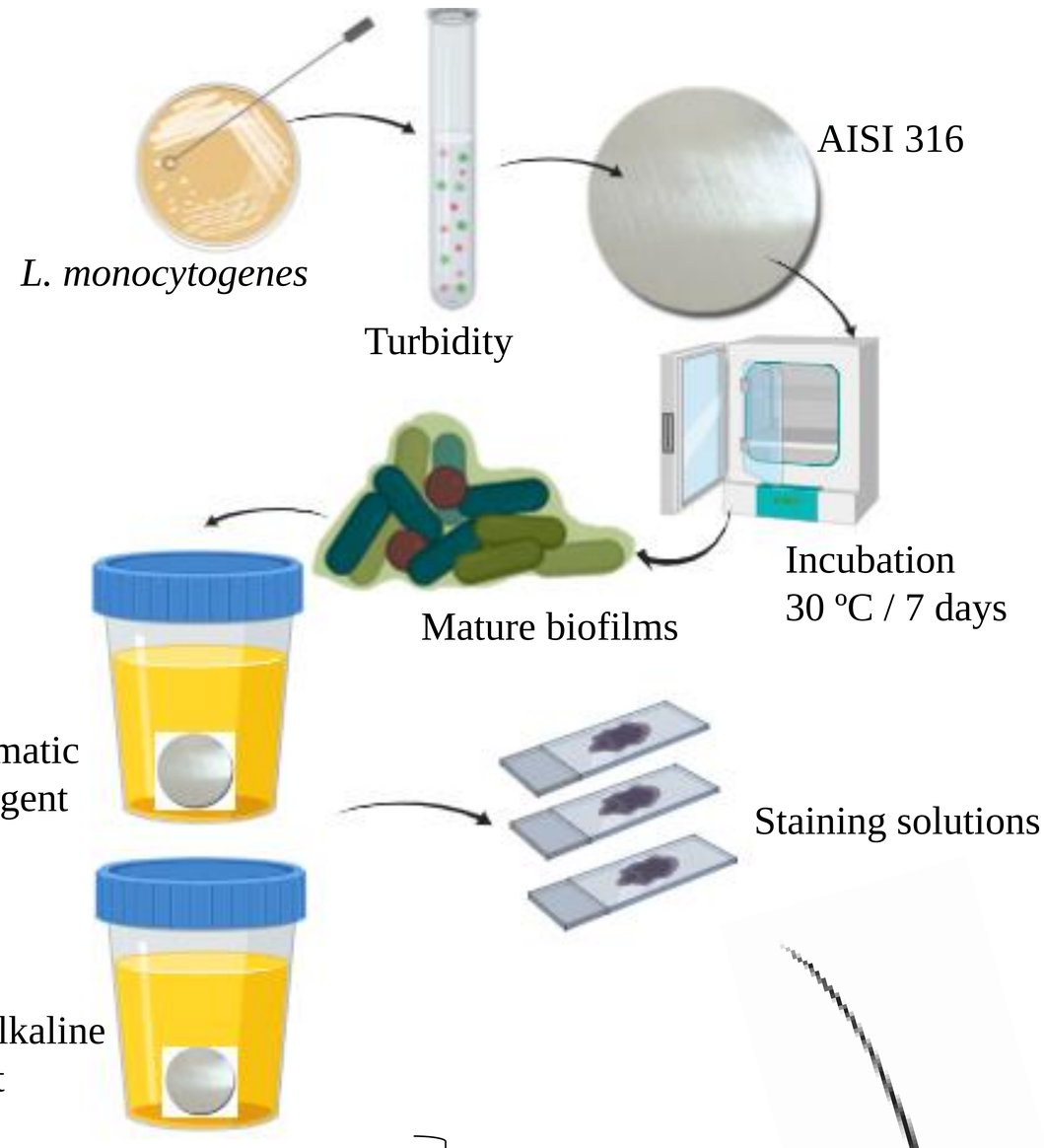
AIMS

1. To compare the effectivity of an enzymatic detergent and a chlorinated alkaline product for the **elimination** of mature *L. monocytogenes* biofilms.

2. To evaluate the **viability** and **integrity** of a mature *L. monocytogenes* biofilm matrix.

3. To assess the necessity of replacing the conventional treatments to remove mature *L. monocytogenes* biofilms.

MATERIALS & METHODS



RESULTS

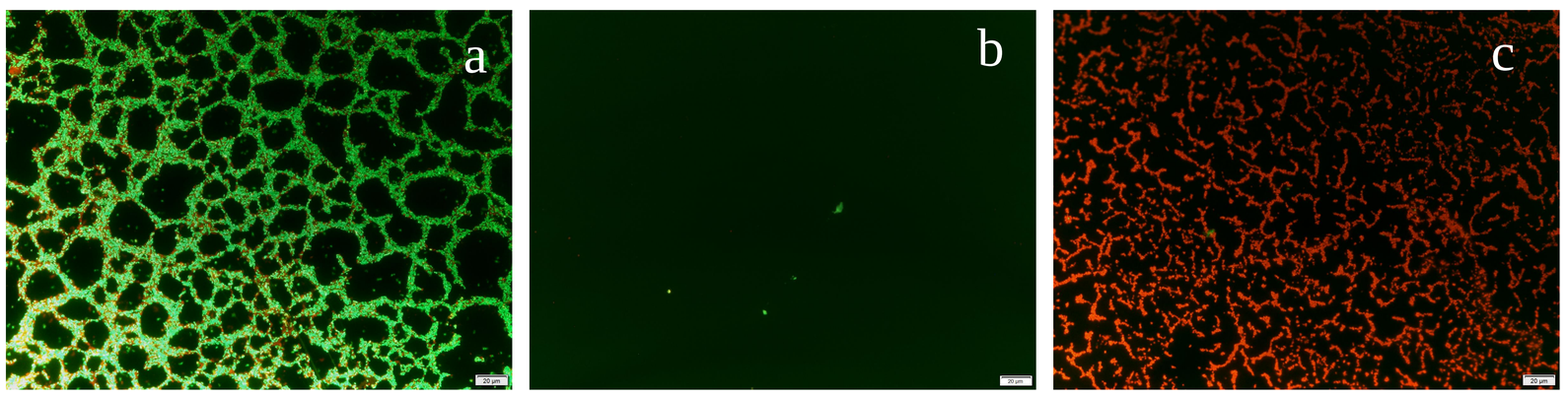


Fig. 1 *L. monocytogenes* mature biofilm (a) eliminated by an enzymatic treatment (b) and a chlorinated alkaline product (c). Live/Dead BacLight was used to assess cell viability by direct epifluorescence microscopy (DEM). Objective: 20X.

Fig. 2 *L. monocytogenes* mature biofilm (a) eliminated by an enzymatic treatment (b) and a chlorinated alkaline product (c). Concanavalin A (red), FITC (green) and DAPI (blue) were used to assess biofilm matrix composition by direct epifluorescence microscopy (DEM). Objective: 20X.

CONCLUSIONS

1. **Chlorinated alkaline** product
   - Could reduce → Microorganism's viability
   - Could not reduce → Biofilm matrix
2. **Enzymatic** detergent → Was able to detach → Microorganisms, Biofilm matrix
3. **Conventional treatment** wasn't effective enough.
4. It is necessary to use alternative **strategies** to eliminate mature biofilms.